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Local Firm Uses Technology to Better Serve Amputees' Needs

PARKERSBURG, WV (September 23, 2014) Miller Prosthetics & Orthotics is using state-of-the-art technology to deliver faster service and comfortable products to amputees in the Mid-Ohio Valley. The Parkersburg-based company's high-tech theme extends throughout the business, not only for the materials used in artificial limbs, but also for the measuring, fitting and production of the prosthetic socket. Using custom software and mobile apps, Miller Prosthetics is able to run a paperless office to keep the workflow and information storage efficient and organized, enabling clinician and owner Mark Miller to focus more time on serving the patient.

"Technology has definitely allowed us to take care of patients better and faster," Miller said, explaining how new technology has changed one of the most important aspects of a prosthetic limb – a correctly fitting socket. The prosthetic socket joins the residual limb to the prosthesis, and the fit will determine the patient's comfort level. "The traditional method of producing a prosthetic socket is to take the impression of the patient's residual limb, fill the impression with plaster to create a plaster model, modify that model and then fabricate the socket over top of the model," Miller said. "We use a handheld scanner, which uses structured light technology, to take a scan of the residual limb. The model is then adjusted on the computer screen and a 3-D image file is sent to a lab in Ohio to fabricate the socket. The lab takes a block of foam and carves it with a CAD-CAM carver to create the model and then fabricates the socket over the model. The fabricator may also bypass the model stage by using a 3-D printer."

By using the scanner, Miller said Miller Prosthetics & Orthotics (MPO) is able to deliver the socket faster. The day the scan is taken and modified, the 3-D image file is emailed to the fabricator, who makes a diagnostic test socket the same day and ships it back to MPO the next day to fit the patient. "The scanner puts the power of the technology into our hands without the investment in a large scale CAD-CAM system," Miller said. "We can literally scan the patient Tuesday morning, and he or she can walk out of the office on the trial socket Wednesday afternoon. The scanner eliminates several steps in the process"

According to Miller, "All methods still have their own pros and cons, and it depends on the type of socket desired and shape of the residual limb." One option for the active vacuum fitting technique uses an iPhone app to change the degree of vacuum to either increase or decrease the level of vacuum depending on the activity. All of these options are available and usable. "MPO is also actively looking at 3-D printing in-house to see how it can broaden the options in prosthetics and orthotics," Miller said.

One of the current MPO patients will soon be in a socket created by a 3-D printer. The 3-D printed socket is actually made in Ohio, and is one of the first fabricators to use this new technology. In addition to the socket, technology continues to improve all areas of the prosthesis. For example, the microprocessor knee that Miller may select for above-knee amputees, uses software to control and modify the function of the knee. This type of knee provides more functionality when walking, including a feature called "stumble recovery," and better stability when standing.

Miller Prosthetics also uses technology to improve communication with patients. Along with scheduling appointments, texting allows a patient to send a picture along with questions to Miller, who can then help solve the problem over the phone. Often that picture is worth a thousand words. Skype is used for long range consultations, and MPO uses an iPad app to streamline the process when working with patients. While in the room with the patient, Miller is able to enter patient information and photos of the residual limb directly to the patient's file. Video can also be stored in the patient's electronic file, which often helps communication with the doctor or third-party payer.

Along with fitting amputees with comfortable prostheses, MPO provides all types of orthotic services such as fitting knee braces, back braces, ankle-foot orthoses, arch supports and diabetic shoes. MPO offers no-charge consultations for new amputees struggling to adjust to their new challenges, as well as existing amputees who are simply not comfortable in their current prosthesis. Miller Prosthetics is also available for in-service sessions to educate area nurses, physical therapists and other caregivers about how to treat patients with limb loss.

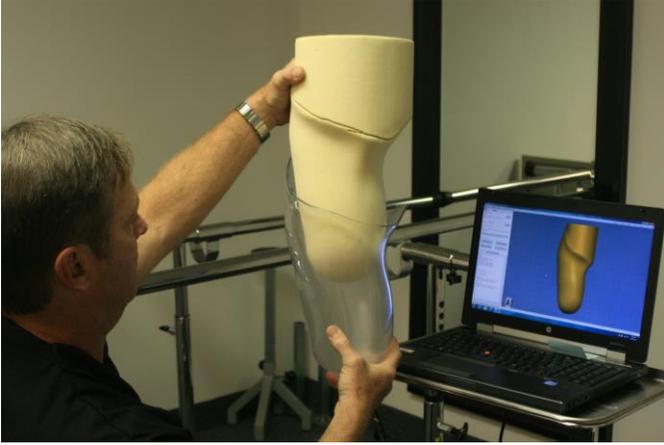
Miller is a certified, licensed prosthetic and orthotic professional and has been helping patients walk comfortably and "restoring their confidence and dignity" for over 25 years. He was born and raised in Marietta, has a Bachelor's of Science degree in Industrial Technology from Ohio University and received his certificate in Prosthetics and Orthotics from Northwestern University. He has been practicing in the Mid-Ohio Valley since 1992.

Miller Prosthetics & Orthotics was established on Dec. 12, 2012 by Mark and his wife, Nancy Miller. Co-owner Nancy Miller has a Bachelor of Business Administration degree in Finance and Statistics, and an MBA from Ohio University. The office is managed by Susie Murphy, who has over 25 years experience in the field.

For more information about Miller Prosthetics & Orthotics, visit www.Millerpo.com and www.facebook.com/MarkMillerCPO.

Caption

Clinician Mark Miller reviews the 3D image of the scanned residual limb and shows the clear socket that was made from the scan.



Mark Miller